

REMARKS

No claims have been canceled, amended or added in this paper. Therefore, claims 1-28 are pending and are under active consideration.

Claims 1-28 stand rejected under 35 U.S.C. 103(a) “as being unpatentable over Wyatt et al (7,162,161) in view of Harvey et al (5,093,553).” In support of the rejection, the Patent Office states the following with respect to sole independent claim 1:

As to claim 1, Wyatt et al disclose (fig. 5) at least one electrical conductor (60, 70) formed as a single-wire or multi-wire line or cable (60, 70) which connects devices, subassemblies or circuit components of the piece of electrical equipment (62, 72, 230) to one another, means (62, 72) for guiding light, an array of transformer (230), and at least one optical fiber (62, 72) which envelopes one or more wire cores (60, 70) of the electrical conductor and thus simultaneously forms the electrical insulation of a line or the shielding of a cable (60, 70), (column 14, lines 17-26). Wyatt et al fails to explicitly disclose an arc is formed from the site of its formation and a monitoring and evaluating unit electrically connected to the transformer for evaluating the signals. Harvey et al disclose optical fiber (16) which guide the light that emerges when an arc (62) is formed from the site (30) of its formation, and a monitoring and evaluating unit (12, 14) for evaluating the signals, (column 4, lines 60-65, column 5, lines 1-15, fig. 3, lines 65-68, column 6, lines 1-30). It would have been obvious for one of ordinary skill in the art to modify Wyatt et al in view of Harvey et al to incorporate the arc welding site to generate the arc which is transmitted through the fiber into the optical transformer resulting in an output that is monitored and process by the detector and the signal processing module in order to improve the stabilization of electrical equipment and minimize accidental arcs throughout the system.

Applicant respectfully traverses the subject rejection. Claims 2-28 depend from claim 1.

Claim 1 is patentable over Wyatt et al. in view of Harvey et al. for at least the reasons below.

At the outset, as best understood by Applicant, the Patent Office appears to be taking the position that Wyatt et al. discloses all of the features of claim 1, except for the feature that the light guided by the optical means is light of an arc which is guided from the site of the formation of the arc to an optical/electrical transformer. Applicant respectfully submits that such a reading of Wyatt et al. is in error. In addition, the Patent Office appears to be taking the position that both Wyatt et al. and Harvey et al. disclose electrical conductors which are comparable to the electrical conductor of present claim 1, which is an instantaneous part of the monitored arrangement. Applicant respectfully submits that such a position is also in error.

Before detailing what Wyatt et al. and Harvey et al. actually do disclose, Applicant would like to make note of the following two points: First, neither Wyatt et al. nor Harvey et al. disclose an arrangement which is constructed and able to monitor electrical equipment for formation of accidental arcs with the intention of defending the system from damage by the light of such an arc. Insofar as it is unproven how one of ordinary skill in the art would have arrived at the present invention by combining Wyatt et al. and Harvey et al., Wyatt et al. discloses and describes an optical communication system (see, for example, the title of Wyatt et al.) which is defended from destroying its optical route more precisely the fibers for transmission of the optical signals by high power density caused by the light used for the communication (see abstract, column 1, lines 8-10 and column 3, lines 29-63). Harvey et al. discloses a solution for monitoring weld arc plasma to detect hydrogen which can be absorbed by metal melted during an arc welding operation and which can result in brittle and cracked welds.

Second, neither Wyatt et al. nor Harvey et al. disclose electrical conductors comparable with the electrical conductor (1) of the arrangement of the present invention respectively with the arrangement claimed with the present application. Contrary to the apparent position of the Patent Office, Wyatt et al. does not actually disclose an electrical conductor. Insofar as the Patent Office seemingly assumes the means (60, 70) to be electrical conductors, this is a misreading of the reference. In fact, means (60, 70) are optical cables (see column 14, line 18) with at least one optical fiber (62, 72). Consequently, the cables (60, 70) are common optical cables but not more or less. In Harvey et al., electrical conductors are actually disclosed only in connection with the sensor cable (64) connecting photodiodes (58) disposed in a housing (44) with a processing module (12) (see col. 5, lines 51-54 in conjunction with col. 6, lines 52-56 and fig. 1) and, of course, in connection with the fact that the weld arc is generated with a welding electrode which is supported with energy via an electrical conductor. However, the latter has nothing to do with the conductor (1) of the present application which is an instantaneous part of the monitored equipment and which is, therefore, monitored itself by the inventive arrangement. Apart from this, the electrical conductors in Harvey et al. are not enveloped by an optical fiber.

With the above in mind, Applicant addresses below the two applied references.

Wyatt et al. discloses an optical communication system which is defended from destroying optical fibers (62, 72) of an optical cable (60, 70) used for transmission of optical signals by high power density, which as the case may be, may be paired with some other strain, for example, of a mechanical nature. The only thing which could be monitored, at most, with respect to this is the

optical cable (60, 70). However, not even the optical cable is monitored for detection of high power density or other stress which could cause damage to the cable. In fact, the solution, according to Wyatt et al., looks ahead to arrest the propagation of optical power induced damage in the optical route when such self-propelled damage occurs and, thus, to limit the damage in the system (see abstract and col. 6, lines 51-59, amongst others). This is achieved by disposing fuses in sections of the optical route whereas the fuses are arranged to reduce the power density by increasing the mode field radius in the sections provided with a fuse by means of mode field transformers (230) (see col. 3, line 64 to col. 4, line 19). Such a mode field transformer can be realized, for example, by a waist of the optical route respectively by waist portions of the fibers in a section (the section with the fuse) of the cable (60, 70) (see col. 6, lines 52-55). But, this provision does not necessitate detection of the presence of light or detection of the accidental presence of light. Therefore, a transformation of optical signals into electrical signals at all events is not necessary for reason of protecting the communication system with respect to Wyatt et al. from damage. Such a transformation is necessary in the context of the communication itself only but not in the context of the safety measures disclosed by Wyatt et al. Insofar as the transformer (230) of Wyatt et al. is divergent to the opinion of the Patent Office not comparable with the transformer (3) of the present application. Moreover, transformer (230) is not an optical/electrical transformer transforming optical signals into electrical, but a pure optical means for increasing the mode field radius in a section of the optical route.

Apart from the fact that cables (60, 70) in Wyatt et al. are not electrical cables, they are not enveloped by the optical fibers (62, 72) in the sense of insulation. Applicant queries how a plurality

of fibers which are in an allotted arrangement (not in the form of a closed envelope) around an (assumed) electrical cable electrically insulate this cable. In fact, the fibers (62, 72) in Wyatt et al. are enveloped by a shell and form together with this shell an optical cable (60, 70) in a common manner.

Harvey et al. discloses a solution for detecting hydrogen concentration in weld arc plasma (see title). It is, therefore, not an object of Harvey et al. to detect emergence of an arc but to analyze the arc which is always present during welding and to declare if there is a hydrogen concentration in its plasma. Moreover, the apparatus of Harvey et al. is not able to be or intended to be connected with means for cutting of the electrical power of the welding electrode like the arrangement of the present invention is (see claims 1 and 2 of the present application).

Furthermore, Harvey et al. does not disclose a combination of electrical conductor and optical fiber wherein the optical fiber is providing insulation for the electrical conductor. That is the reason why it is not possible to couple light of an arc which can occur on any location of a system especially on any location of the extension of an electrical conductor into the fiber bundle (16) of the apparatus of Harvey et al. In fact, with respect to the apparatus of Harvey et al., the light can be coupled into the front face of the fiber bundle (16) only.

In conclusion, neither Wyatt et al. nor Harvey et al. discloses an arrangement which is designed and able to monitor electrical equipment for formation of accidental arcs. Furthermore, it is not apparent why a person of ordinary skill in the art would have been motivated to combine Wyatt et al., which discloses an optical communication system, with Harvey et al., which discloses a

solution for detecting hydrogen concentration in weld arc plasma. However, even if there were a basis for such a combination (a point Applicant disputes), a person of ordinary skill in the art would not have arrived at a solution which is able to monitor electrical equipment for emergence of stray light arcs, as claimed in the present application.

Accordingly, for at least the above reasons, the subject rejection should be withdrawn.

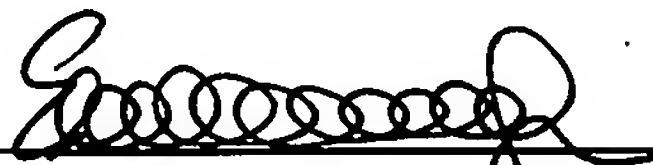
In conclusion, it is respectfully submitted that the present application is in condition for allowance. Prompt and favorable action is earnestly solicited.

If there are any fees due in connection with the filing of this paper that are not accounted for, the Examiner is authorized to charge the fees to our Deposit Account No. 11-1755. If a fee is

required for an extension of time under 37 C.F.R. 1.136 that is not accounted for already, such an extension of time is requested and the fee should also be charged to our Deposit Account.

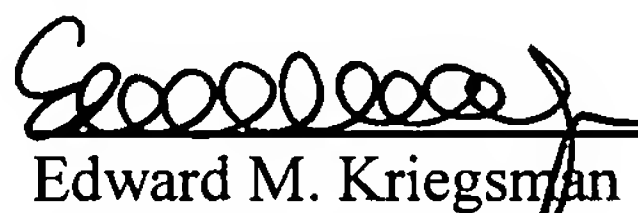
Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on June 4, 2009.


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